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1980

Capital Investments of the World Petroleum Industry

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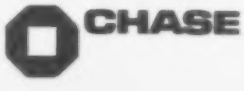


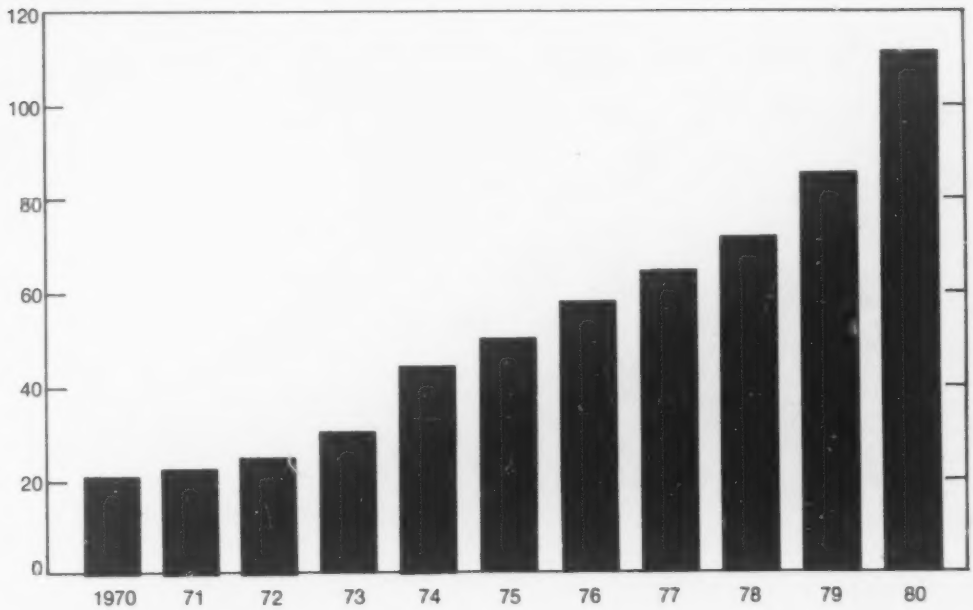
FOREWORD

For many years the Energy Economics Division of The Chase Manhattan Bank has conducted a continuous and detailed study of the financial performance of a large number of petroleum companies. The combined operations of these organizations constitute a major proportion of the worldwide activities of the petroleum industry, and their financial performance, therefore, is a significant indication of the probable experience of the overall industry.

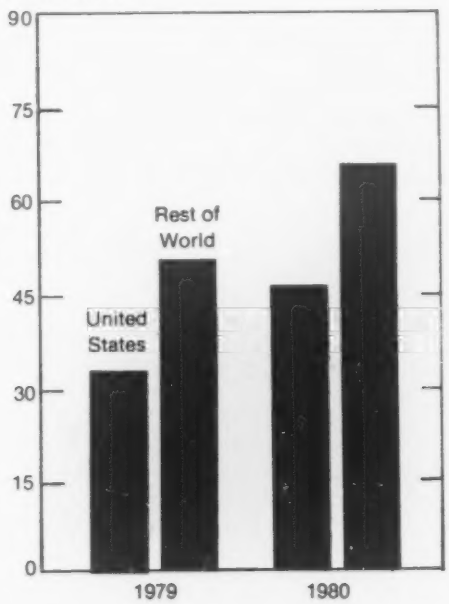
Additional data have been obtained from surveys of a great many investor and other government-owned operating entities, and the sum of all the information gained has provided a base from which we have derived a reliable estimate of the worldwide capital investments of the petroleum industry.

CAPITAL AND EXPLORATION EXPENDITURES

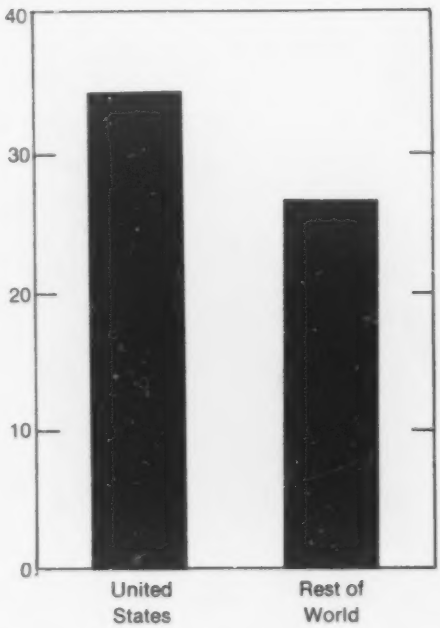
Worldwide
billions of dollars



United States and Rest of World
billions of dollars



Change from 1979
percent



Highlights of CAPITAL EXPENDITURES IN 1980

Worldwide Capital and Exploration Expenditures

- The capital and exploration expenditures of the petroleum industry in the non-Communist world rose dramatically in 1980, reaching $113.2 billion, which is $26.2 billion, or 30 percent, higher than the record-setting outlays registered in 1979. Sparked by OPEC II and crude oil price decontrol, expenditures in the United States increased to $46.8 billion, 34 percent above the previous year's figure, and this nearly $12 billion increase represents 46 percent of the total growth. In the rest of the world, propelled by national security and balance-of-payment concerns, expenditures rose by a substantial 27 percent, to reach $66.4 billion. Western Europe and the Middle East recorded the largest gains.

Regional or Geographic Breakdown

- Each of the geographic areas registered record-high expenditures in 1980. The United States accounted for 41 percent of the total, followed by Western Europe at 18 percent, and the Middle East at 11 percent.

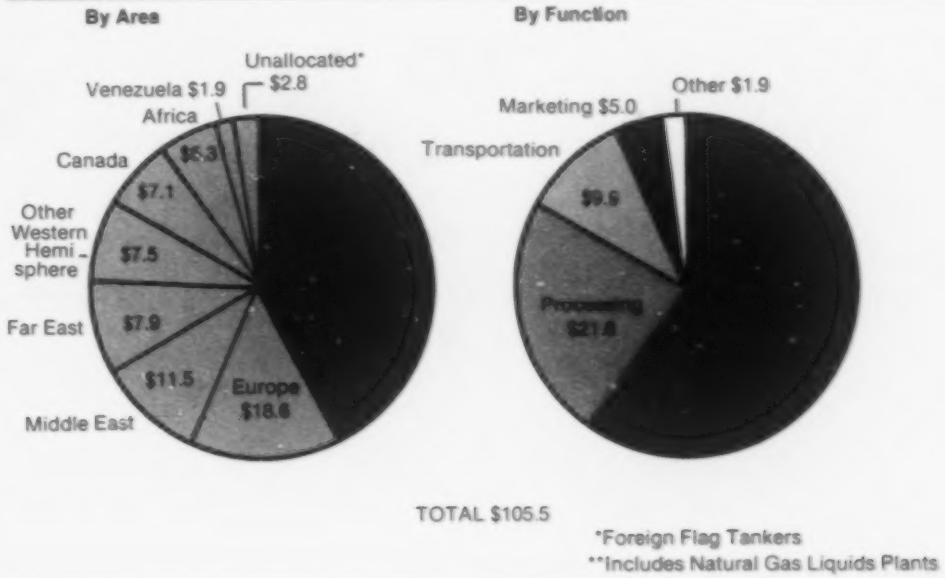
- Except for the Middle East and Far East, the major portion of the capital invested in each of the areas was devoted to upstream activities for the purpose of locating and developing additional petroleum resources.

All Functions

- On a functional basis, increases ranging from 10 percent to 51 percent above 1979 figures were recorded in each of the major segments, including the transportation category (pipelines and tankers), in which

WORLDWIDE CAPITAL EXPENDITURES — 1980

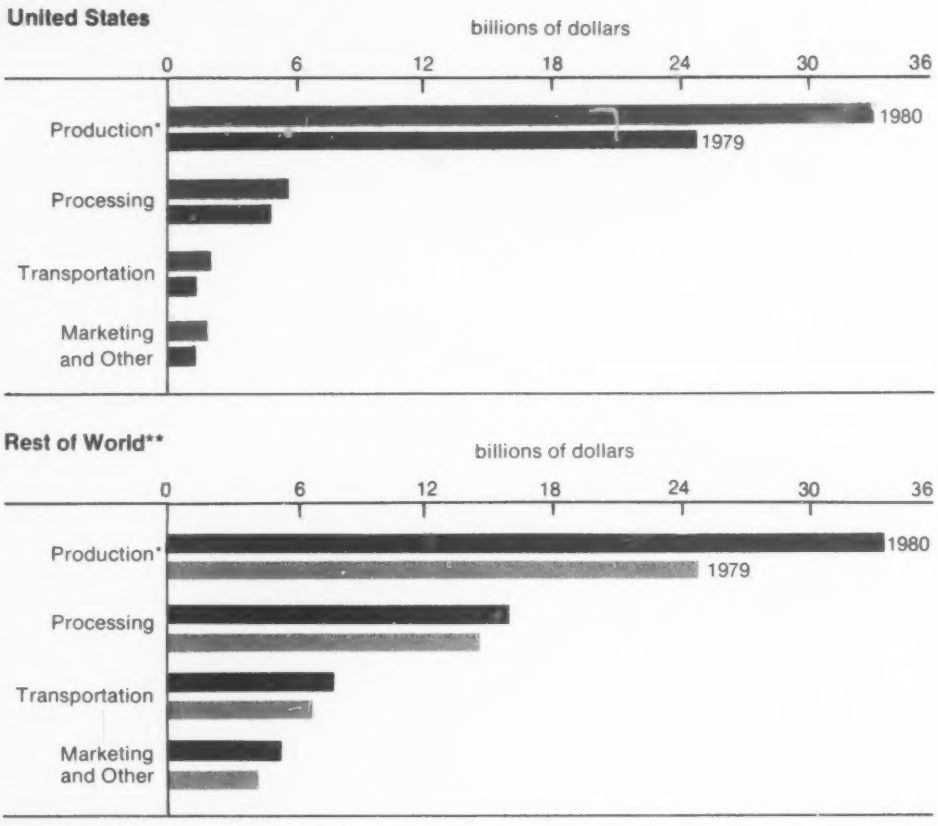
billions of dollars



TOTAL $105.5

*Foreign Flag Tankers
**Includes Natural Gas Liquids Plants

WORLDWIDE CAPITAL EXPENDITURES
BREAKDOWN BY FUNCTION - 1980 VS. 1979



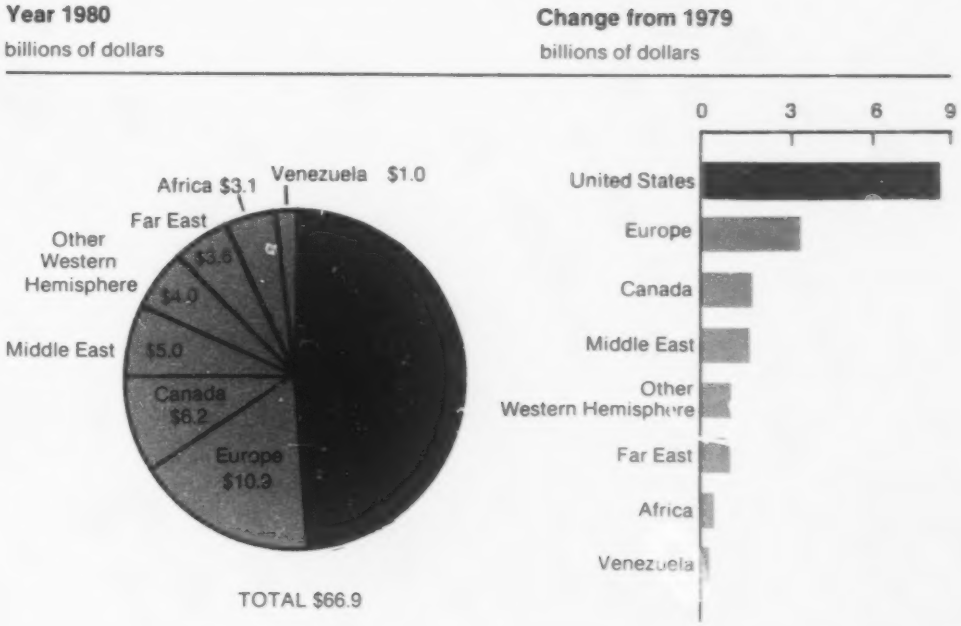
*Includes Natural Gas Liquids Plants
**Excludes Communist Countries

expenditures had been declining for the previous three years.

- Capitalized expenditures for production purposes continued to far outpace the other investments, rising to 63 percent of the entire sum from 60 percent a year earlier. Outlays for processing facilities (refineries and chemical plants) made up the second largest proportion at 21 percent, followed by 9 percent for transportation, and 7 percent for marketing and other.

- Investments in each functional category, with the exception of transportation, reached the highest levels on record for a single year.

CAPITAL EXPENDITURES — PRODUCTION



Production

- Nearly one-half of the total increase in production expenditures during 1980 occurred in the United States, where exploration and development activity rose dramatically in response to higher crude oil prices. A significant gain was also recorded in Western Europe, principally because of the continuing expansion of operations in the North Sea, so that, together, these two areas accounted for approximately two-thirds of the petroleum industry's entire expenditures for production purposes.

- The highest proportional amounts of expenditures allocated to the production segment were in Canada, at 88 percent, and the U.S., at 77 percent. The lowest proportions were 43 percent in the Middle East and 46 percent in the Far East.

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Photographs used in this report were furnished through the courtesy of Exxon Corporation.

SCHEDULE 1 CAPITAL AND EXPLORATION EXPENDITURES
Year 1980

	United States	*Canada*	*Venezuela*
	Million Dollars		
Crude Oil and Natural Gas	32,350	5,900	1,000
Natural Gas Liquids Plants	750	300	25
Total Production	33,100	6,200	1,025
Pipe Lines	1,550	150	75
Tankers	600	0	0
Refineries	3,250	250	675
Chemical Plants	2,400	100	25
Marketing	1,300	175	75
Other	700	200	50
Total Capital Expenditures	42,900	7,075	1,925
Geological & Geophysical Expense and Lease Rentals	3,850	825	400
CAPITAL & EXPLORATION EXPENDITURES	46,750	7,900	2,325

SCHEDULE 2 GROSS INVESTMENT IN FIXED ASSETS
December 31, 1980

Crude Oil and Natural Gas	140,550	23,425	7,700
Natural Gas Liquids Plants	5,725	2,175	360
Total Production	146,275	25,600	8,060
Pipe Lines	20,450	2,125	620
Tankers	3,875	0	0
Refineries	26,890	4,450	2,050
Chemical Plants	20,440	975	35
Marketing	15,315	2,700	275
Other	4,995	850	225
TOTAL GROSS INVESTMENT	238,240	36,700	11,265

SCHEDULE 3 NET INVESTMENT IN FIXED ASSETS
December 31, 1980

Crude Oil and Natural Gas	97,040	19,910	2,775
Natural Gas Liquids Plants	2,650	1,495	155
Total Production	99,690	21,405	2,930
Pipe Lines	14,170	1,135	110
Tankers	2,290	0	0
Refineries	13,215	2,430	1,200
Chemical Plants	10,980	600	35
Marketing	7,115	1,425	145
Other	2,815	715	185
TOTAL NET INVESTMENT	150,275	27,710	4,605

Other Western Hemisphere	Western Europe	Africa	Middle East	Far East	Unallocated	Free World
			Million Dollars			
3,650	10,500	2,300	2,450	3,150	0	61,300
325	400	800	2,500	475	0	5,575
3,975	10,900	3,100	4,950	3,625	0	66,875
825	550	575	2,200	550	0	6,475
0	0	0	0	0	2,800	3,400
1,050	2,950	750	2,350	2,200	0	13,475
1,225	1,800	575	1,750	425	0	8,300
250	2,125	225	125	775	0	5,050
200	300	50	150	300	0	1,950
7,525	18,625	5,275	11,525	7,875	2,800	105,525
450	750	500	200	650	0	7,625
7,975	19,375	5,775	11,725	8,525	2,800	113,150
15,625	39,050	10,400	14,950	10,850	0	262,550
1,525	1,600	4,475	7,825	3,675	0	27,360
17,150	40,650	14,875	22,775	14,525	0	289,910
7,550	7,625	4,550	10,550	2,800	0	56,270
0	0	0	0	0	57,200	61,075
12,325	31,425	5,575	10,975	21,850	0	115,540
6,350	16,275	1,950	5,225	3,175	0	54,425
2,900	17,675	2,425	875	7,250	0	49,415
1,325	2,650	525	1,600	1,550	0	13,720
47,600	116,300	29,900	52,000	51,150	57,200	640,355
10,225	35,585	7,750	8,985	8,500	0	190,770
1,185	1,340	3,760	7,175	3,135	0	20,895
11,410	36,925	11,510	16,160	11,635	0	211,665
5,580	5,610	3,175	8,190	2,245	0	40,215
0	0	0	0	0	45,250	47,540
8,335	17,410	4,245	8,680	13,570	0	69,085
5,220	10,840	1,825	4,850	2,150	0	36,500
925	6,715	875	290	3,460	0	20,950
1,045	2,190	385	1,020	1,285	0	9,640
32,515	79,690	22,015	39,190	34,345	45,250	435,595

SCHEDULE 4 CAPITAL AND EXPLORATION EXPENDITURES

	1970	1971	1972	1973
	Million Dollars			
WORLD				
Crude Oil and Natural Gas	6,650	6,520	9,590	12,415
Natural Gas Liquids Plants	580	695	515	510
Pipe Lines	850	1,200	1,230	1,230
Tankers	2,575	2,875	3,775	6,550
Refineries	4,000	4,755	4,955	4,865
Chemical Plants	1,525	1,535	1,350	1,175
Marketing	3,220	3,380	2,825	2,480
Other	725	840	710	770
Total Capital Expenditures	20,125	21,800	24,950	29,995
Geological & Geophysical Expense and Lease Rentals	1,340	1,395	1,540	1,700
COMBINED	21,465	23,195	26,490	31,695
UNITED STATES				
Crude Oil and Natural Gas	4,110	3,185	5,740	7,290
Natural Gas Liquids Plants	225	200	175	150
Pipe Lines	450	550	300	450
Tankers	100	125	125	100
Refineries	1,075	1,050	900	1,050
Chemical Plants	550	500	450	425
Marketing	1,450	1,350	1,100	850
Other	265	290	260	325
Total Capital Expenditures	8,225	7,250	9,050	10,640
Geological & Geophysical Expense and Lease Rentals	665	715	740	850
COMBINED	8,890	7,965	9,790	11,490
CANADA				
Crude Oil and Natural Gas	650	725	850	1,000
Natural Gas Liquids Plants	165	150	100	75
Pipe Lines	35	75	60	80
Refineries	240	210	325	290
Chemical Plants	25	15	10	15
Marketing	160	150	150	155
Other	25	20	30	35
Total Capital Expenditures	1,300	1,345	1,525	1,650
Geological & Geophysical Expense and Lease Rentals	175	150	150	175
COMBINED	1,475	1,495	1,675	1,825

1974	1975	1976	1977	1978	1979	1980
			Million Dollars			
18,765	18,295	23,860	28,680	33,675	44,500	61,300
770	960	1,915	3,780	4,030	4,565	5,575
2,460	5,995	7,575	6,660	5,780	5,775	6,475
8,900	9,240	8,675	3,700	2,950	2,250	3,400
7,720	8,725	6,910	8,290	10,675	11,775	13,475
1,995	3,145	4,500	6,375	6,650	7,235	8,300
2,215	2,160	2,180	2,670	3,240	3,750	5,050
875	1,105	1,110	1,425	1,375	1,775	1,950
43,700	49,625	56,725	61,580	68,375	81,625	105,525
2,185	2,325	2,535	3,395	4,035	5,325	7,625
45,885	51,950	59,260	64,975	72,410	86,950	113,150
11,225	9,055	13,135	14,855	17,325	24,150	32,350
225	325	325	325	325	450	750
1,400	3,500	3,625	1,800	750	1,100	1,550
200	225	275	500	600	350	600
1,775	2,100	1,575	1,200	1,750	2,625	3,250
825	1,500	2,200	2,500	2,300	2,000	2,400
650	650	625	775	950	975	1,300
325	370	325	445	475	550	700
16,625	17,725	22,085	22,400	24,475	32,200	42,900
1,130	1,195	1,375	1,645	1,975	2,600	3,850
17,755	18,920	23,460	24,045	26,450	34,800	46,750
1,150	1,125	1,550	2,900	3,200	4,300	5,900
150	150	150	125	150	225	300
75	160	135	350	135	125	150
400	410	325	375	400	175	250
30	70	75	125	125	75	100
190	175	175	175	165	150	175
80	120	45	75	65	150	200
2,075	2,210	2,455	4,125	4,240	5,200	7,075
225	200	250	450	500	700	825
2,300	2,410	2,705	4,575	4,740	5,900	7,900

SCHEDULE 4 CAPITAL AND EXPLORATION EXPENDITURES *(Continued)*

	1970	1971	1972	1973
	Million Dollars			
VENEZUELA				
Crude Oil and Natural Gas	205	210	150	200
Natural Gas Liquids Plants	25	5	5	5
Pipe Lines	20	10	5	5
Refineries	35	45	30	10
Chemical Plants	0	0	0	0
Marketing	10	5	0	0
Other	5	5	5	0
Total Capital Expenditures	300	280	195	220
Geological & Geophysical Expense and Lease Rentals	15	30	25	25
COMBINED	315	310	220	245
OTHER WESTERN HEMISPHERE				
Crude Oil and Natural Gas	360	525	550	575
Natural Gas Liquids Plants	10	5	0	50
Pipe Lines	60	220	175	75
Refineries	400	650	475	550
Chemical Plants	100	75	15	20
Marketing	100	150	125	100
Other	130	100	60	65
Total Capital Expenditures	1,160	1,725	1,400	1,435
Geological & Geophysical Expense and Lease Rentals	85	75	75	75
COMBINED	1,245	1,800	1,475	1,510
WESTERN EUROPE				
Crude Oil and Natural Gas	300	500	650	1,300
Natural Gas Liquids Plants	50	75	50	25
Pipe Lines	75	150	400	350
Refineries	1,050	1,400	1,500	1,550
Chemical Plants	725	800	800	600
Marketing	900	1,000	825	800
Other	160	225	225	200
Total Capital Expenditures	3,260	4,150	4,450	4,825
Geological & Geophysical Expense and Lease Rentals	100	75	125	175
COMBINED	3,360	4,225	4,575	5,000

1974	1975	1976	1977	1978	1979	1980
			Million Dollars			
290	240	250	375	700	800	1,000
15	10	40	5	5	15	25
10	0	15	10	20	25	75
20	15	10	40	175	425	675
0	0	0	0	0	10	25
0	10	5	20	25	25	75
0	15	15	30	60	25	50
335	290	335	480	985	1,325	1,925
30	30	10	50	60	200	400
365	320	345	530	1,045	1,525	2,325
925	950	1,175	1,100	1,900	2,650	3,650
50	75	75	200	250	325	325
260	625	750	425	1,550	1,200	825
1,025	1,250	1,100	1,050	1,000	1,175	1,050
100	150	475	950	1,075	1,375	1,225
125	150	150	175	225	250	250
50	75	100	200	175	125	200
2,535	3,275	3,825	4,100	6,175	7,100	7,525
150	150	125	150	200	300	450
2,685	3,425	3,950	4,250	6,375	7,400	7,975
2,375	3,600	4,200	5,275	5,975	7,200	10,500
40	50	50	225	200	350	400
475	1,000	1,100	875	950	700	550
2,250	2,350	1,450	2,000	2,500	2,525	2,950
850	1,100	1,200	1,300	1,500	1,600	1,800
750	700	725	875	1,100	1,400	2,125
180	250	225	325	250	300	300
6,920	9,050	8,950	10,875	12,475	14,075	18,625
225	300	325	450	475	550	750
7,145	9,350	9,275	11,325	12,950	14,625	19,375

SCHEDULE 4 CAPITAL AND EXPLORATION EXPENDITURES *(Continued)*

	1970	1971	1972	1973
	Million Dollars			
AFRICA				
Crude Oil and Natural Gas	450	525	500	500
Natural Gas Liquids Plants	75	135	100	125
Pipe Lines	100	80	90	55
Refineries	85	100	200	165
Chemical Plants	0	5	0	5
Marketing	75	100	100	100
Other	5	30	15	25
Total Capital Expenditures	790	975	1,005	975
Geological & Geophysical Expense and Lease Rentals	100	150	175	125
COMBINED	890	1,125	1,180	1,100
MIDDLE EAST				
Crude Oil and Natural Gas	275	450	500	850
Natural Gas Liquids Plants	5	25	10	5
Pipe Lines	75	65	140	130
Refineries	140	125	225	300
Chemical Plants	25	40	25	30
Marketing	25	25	25	25
Other	20	95	50	50
Total Capital Expenditures	565	825	975	1,390
Geological & Geophysical Expense and Lease Rentals	50	50	50	50
COMBINED	615	875	1,025	1,440
FAR EAST				
Crude Oil and Natural Gas	300	400	650	700
Natural Gas Liquids Plants	25	100	75	75
Pipe Lines	35	50	60	85
Refineries	975	1,175	1,300	950
Chemical Plants	100	100	50	80
Marketing	500	600	500	450
Other	115	75	65	70
Total Capital Expenditures	2,050	2,500	2,700	2,410
Geological & Geophysical Expense and Lease Rentals	150	150	200	225
COMBINED	2,200	2,650	2,900	2,635
FOREIGN FLAG TANKERS	2,475	2,750	3,650	6,450

1974	1975	1976	1977	1978	1979	1980
			Million Dollars			
750	825	1,000	950	1,275	1,650	2,300
140	175	200	600	900	1,000	800
50	250	525	525	625	550	575
150	250	375	900	1,175	800	750
25	50	150	300	400	500	575
75	100	125	175	200	225	225
25	25	50	100	75	75	50
1,215	1,675	2,425	3,550	4,650	4,800	5,275
150	200	175	300	375	350	500
1,365	1,875	2,600	3,850	5,025	5,150	5,775
975	1,000	1,375	1,925	1,550	1,700	2,450
25	25	675	1,400	1,500	1,650	2,500
120	350	1,250	2,150	1,400	1,550	2,200
450	400	925	1,250	2,050	2,100	2,350
40	50	150	900	1,000	1,200	1,750
25	25	25	50	50	100	125
135	175	275	125	100	125	150
1,770	2,025	4,675	7,800	7,650	8,425	11,525
50	50	75	125	150	175	200
1,820	2,075	4,750	7,925	7,800	8,600	11,725
1,075	1,500	1,175	1,300	1,750	2,050	3,150
125	150	400	900	700	550	475
70	110	175	525	350	525	550
1,650	1,950	1,150	1,475	1,625	1,950	2,200
125	225	250	300	250	475	425
400	350	350	425	525	625	775
80	75	75	125	175	425	300
3,525	4,360	3,575	5,050	5,375	6,600	7,875
225	200	200	225	300	450	650
3,750	4,560	3,775	5,275	5,675	7,050	8,525
8,700	9,015	8,400	3,200	2,350	1,900	2,800

SCHEDULE 5 EXPLORATION AND DEVELOPMENT EXPENDITURES – UNITED STATES – 1970 - 1980

(Excludes Natural Gas Liquids Plants)

	1970	1971	1972
	Million Dollars		
Lease Acquisitions – Onshore	150	200	200
Lease Acquisitions – Offshore	950	100	2,275
Total	1,100	300	2,475
Producing Wells	2,160	2,095	2,330
Dry Holes	850	790	935
Total Capitalized	4,110	3,185	5,740
Geological & Geophysical Expense	525	575	575
Lease Rentals	140	140	165
Total Exploration & Development Expenditures	4,775	3,900	6,480

	1973	1974	1975	1976
Lease Acquisitions – Onshore	500	700	500	600
Lease Acquisitions – Offshore	3,100	5,100	1,200	2,275
Total	3,600	5,800	1,700	2,875
Producing Wells	2,705	3,975	5,515	8,055
Dry Holes	985	1,450	1,840	2,205
Total Capitalized	7,290	11,225	9,055	13,135
Geological & Geophysical Expense	675	925	980	1,150
Lease Rentals	175	205	215	225
Total Exploration & Development Expenditures	8,140	12,355	10,250	14,510

	1977	1978	1979	1980
Lease Acquisitions – Onshore	650	700	800	1,025
Lease Acquisitions – Offshore	1,675	1,850	4,600	5,100
Total	2,325	2,550	5,400	6,125
Producing Wells	9,645	10,875	13,600	19,350
Dry Holes	2,885	3,900	5,150	6,875
Total Capitalized	14,855	17,325	24,150	32,350
Geological & Geophysical Expense	1,400	1,700	2,275	3,425
Lease Rentals	245	275	325	425
Total Exploration & Development Expenditures	16,500	19,300	26,750	36,200

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